HARDCOPY

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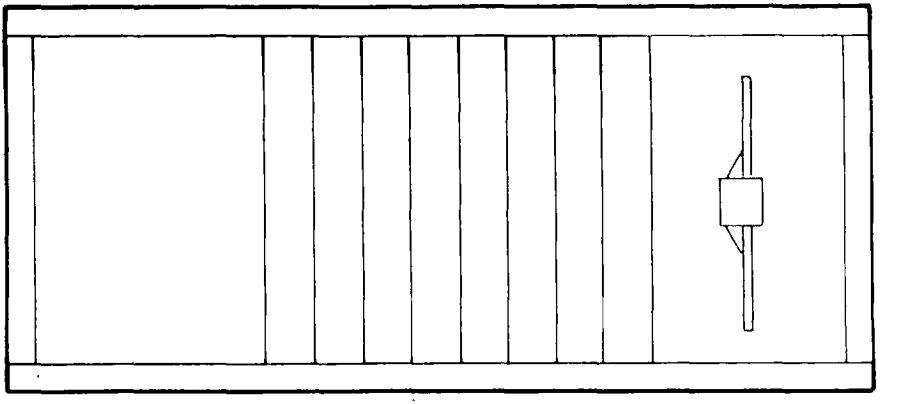

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The executive members are:
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Single copy cost $0.50/issue for non-members. Subscription rates are included in the annual membership fee of $20.00/year (or $15.00 if under 16). Mailing privileges are an additional $5.00/year.

Articles and contents are to serve the TI user group and are welcome from all sources. Advertising of products are not endorsed by this newsletter or by the group members. Accuracy of publication of programs cannot be guaranteed and will be corrected in future issues as required. Submissions must be submitted to: BRUCE TRAVIS, 5551-4th AVENUE N.E., CALGARY, ALBERTA, T2A 3X9 at least two weeks prior to the last meeting of the month which is the release date of that month's issue of HARDCOPY.

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EDITOR'S CORNER

The one thing that I have noticed with anyone that has a computer and makes use of it, is that they all seem to be addicts. Addicts to the Silicon Chip that is. They seem to want to possess it and everything that goes with it. They're not just satisfied to get a taste of it, they have to have it all. It entices them to get more, be it disk drives, expansion memories, printers, modems, or even the speech module to let them know that it too has a voice in this world that they have created around it.

If you think that this sounds ridiculous then you have not yet succumb to the SC! When using it, time does not seem to exist! The rumor of something new causes them to perk up their ears and find out what the others are talking about even to the extent that they butt into the conversation in hopes of learning more about it.

And the name that they call themselves; "A USERS GROUP"! Of all things to say. If you don't believe me then your computer is already heading for the RESTING PLACE ON THE SHELF. But don't worry; someone out there will offer to buy it to keep their habit from becoming lonely.

Bruce H. Travis
EDITOR IN CHIEF

MEMBERSHIPS

Membership renewals were due as of December 1/84. They are available at the regular meetings at the low cost of $20.00 ($15.00 if you are under 16). Please renew your membership as soon as possible.

VISITORS

Welcome! We hope that you have enjoyed yourselves and will consider joining our group.

FEATURE ARTICLE

One of the feature articles this month is for those of you that would like to venture forth(?) and is entitled "AN INTRODUCTION TO FORTH" written by Grant W. Bell.

If you have worked in Basic thus far, Forth is an inexpensive way to become introduced to:

1. A Compiler Language &
2. An Assembler Language
3. Interpreter based Language

What this means in more down to earth English, is that you may enter commands at the keyboard and the system will execute them immediately (Interpreter). You may write a program in Forth, a high level language, compile it with the compiler and run the object code which is in machine language; or if you are really sadistic, you can write in Forth style Assembler. You may in addition to the above, combine the latter two.

For those of you who have only experienced the speed of Basic, hold on to

your hats. Forth is slightly slower than programs written in straight T.I. Assembler Language and faster than most other high level languages including the dreaded Pascal.

Forth is a highly structured language, even more so than Pascal. Pascal does have a "GOTO" whereas Forth does not. If you think it would be impossible to write a program without using "GOTO", you're wrong. Even true Pascal people frown on those who employ "GOTO" in Pascal.

For those considering Forth, you will require the following minimum configuration:

1. 32K Memory Expansion
2. Disk Controller/1 Disk Drive
3. Editor/Assembler Cartidge
4. Optional - RS232 Card, Printer and a second Disk Drive would be a definite asset.

In reading the T.I. Forth manual, it leaves a lot to be desired. It would be wise to obtain "STARTING FORTH" by Leo Brodie which is published by Prentice-hall. Appendix C in the T.I. manual gives the additions/changes required in Brodie's book to run the example programs, etc.

For those of you who would like to try Forth and have the necessary hardware, the cost of the Forth system and Brodie's text should not exceed $40.00.

If enough members show an interest in learning Forth, I would be most happy to submit further articles which may help you get started. I would also provide individual or group sessions at the regular meetings.

Please direct your requests either to myself or to the Editor In Chief regarding this article.

I trust that this has been informative and until next time, happy computing.

The second feature article this month is a followup from last month and has to do with the editor/assembler language. It is entitled "LEVEL ONE DISK DRIVE READ/WRITE ACCESS" and is written by Ron Zakariasen.

There are methods of accessing the disk drives that are not discussed in the Editor/Assembler manual. The disk drive DSR Header and Linkage Block contains the numbers 10 through 16 as valid names in addition to the normal names that start with DSK. The first name (10) is used for level one read/write access to the drive. The second name (11) is used to initialize a disk. I have not figured out what the remaining names do yet.

Level one disk access allows the disk to be accessed by sector rather than by a record in a file. The Navarone Disk Fixer and TI Forth both use this method of accessing the disk drives. In fact this method is so powerful that TI chose not to tell us about it to protect their own software.

The following excerpts from an assembly language program show how to use this method of accessing the disk drives.

```
        DEF START
        REF VMBW,VSBW,DSRLNK
USERWS  EQU >8300
VDPBUF  EQU >1000
PAB     EQU >3F00
DSKERR  EQU >8350
SECTOR  EQU >8350  THESE FOUR  ADDRESSES ARE REQUIRED
DEVICE  EQU >834C  FOR THE DSR ROUTINE
R/W     EQU >834D
BUFFER  EQU >834E
RDSK    DATA USERWS,RDSK1 BLWP VECTORS
WDSK    DATA USERWS,WDSK1
PDATA   DATA >1000,>1000,>5000,>0000,>0001,>1000
        EVEN
*
```

```
*CREATE PERIPHERAL ACCESS BLOCK
START LWPI USERWS
      LI R0,PAB
      LI R1,PDATA
      LI R2,>000C
      BLWP @VMBW
*
* READ A SECTOR
      LI R4,0          READ SECTOR 0
      LI R5,VDPBUF     VDP DATA BUFFER >1000
      LI R6,>0100      DRIVE NUMBER ONE

      BLWP @RDSK
*
* WRITE A SECTOR
      LI R4,0          WRITE SECTOR 0
      LI R5,VDPBUF     VDP DATA BUFFER >1000
      LI R6,>0100      DRIVE NUMBER ONE
      BLWP @WDSK
*
* SUBROUTINE TO READ A SECTOR FROM DISK
RDSK1 MOV R4,@SECTOR  SET SECTOR NUMBER
      MOVB R6,@DEVICE SET DRIVE NUMBER
      LI R1,>0100
      MOVB R1,@R/W    SET BYTE TO ONE FOR READ
      MOV R5,@BUFFER  LOAD VDP BUFFER LOCATION
      LI R8,PAB+9
      MOV R8,@>8356   POINTER TO NAME LENGTH
      BLWP @DSRLNK    ACCESS DISK DRIVE
      DATA >000A      INDICATES ROM ROUTINE
      MOVB @DSKERR,R8 CHECK FOR I/O ERROR
      JNE DKERR       ERROR IF NOT ZERO
      RTWP
*
* SUBROUTINE TO WRITE TO A DISK
WDSK1 MOV R4,@SECTOR  SET SECTOR NUMBER
      MOVB R6,@DEVICE SET DEVICE NUMBER
      CLR R1
      MOVB R1,@R/W    SET TO ZERO FOR WRITE
      MOV R5,@BUFFER  LOAD VDP BUFFER LOCATION
      LI R8,PAB+9
      MOV R8,@>8356   POINTER TO NAME LENGTH
      BLWP @DSRLNK    ACCESS DISK DRIVE
      DATA >000A
```

```
      MOVB @DSKERR,R8 CHECK FOR I/O ERROR
      JNE DKERR       ERROR IF NOT ZERO
      RTWP
*
* SUBROUTINE TO WRITE I/O ERROR CODE ON SCREEN
T8  TEXT 'I/O ERROR '  10 BYTES LONG
DKERR LI R0,292
      LI R1,T8        WRITES 'I/O ERROR ' TO THE SCREEN
      LI R2,10
      BLWP @VMBW
      SRL R8,4
      MOVB @DSKERR,R8 GET ERROR CODE AND
      SRL R8,4
      ANDI R8,>0F0F
      AI R8,>3030     CONVERT IT TO ASCII
      LI R0,313
      MOV R8,R1
      BLWP @VSBW      WRITE ERROR CODE TO SCREEN
      SWPB R1
      INC R0
      BLWP @VSBW
      B @FINISH       BRANCH TO A LABEL
```

I trust that this has been informative and until next time, happy computing.

LIBRARY

At the last T.I. meeting it was voted and agreed upon to expand our library in all the areas including Forth and Pascal. This would involve some twenty disks of programs from entertainment to business. We hope to list some of the things that we received under this column in the next issue of HARDCOPY.

MEMBER'S LIBRARY

One of the lastest additions to our Member's Library was a "RECORD STORAGE PROGRAM" BY ERIC KING. COST IS $2.50. A short write up will be given here this month

and we have also included a modification for those that have purchased the program already.

Are you in need of a program that will store approximately 1000 records and tapes? If so then please ask Gerry Driscoll for the above program. It sorts, searches and displays data on the screen (or can be listed on a printer with the upcoming modifications which will be available soon.)

The size of the program is 11K and does not need the 32K card however does require a disk drive and extended basic module. This program stores data in three files as follows:

1. Group
2. Song
3. Location

however you could use it for addresses and phone numbers by substituting different data in place of the group call-up. (NOTE: Modifications would have to be made to broaden the scope from the above)

CHANGES

THE FOLLOWING CHANGES SHOULD BE MADE IF YOU HAVE THIS PROGRAM.

```
1660 IF SEG$(L$,1,GH)=SEG$(DG$,1,GH) THEN 1700 :: IF SEG$(L$,GH,1)<>"F" THEN 1680
```

If you have any questions regarding this program then call Eric at 273-9087.

Updates will be added as required. If you have a program in the Member's Library and would like to promote it under this column, then please submit the article to the Editor In Chief prior to the next issue of HARDCOPY.

PRODUCT CORNER

Product orders will be taken by Don Smythe, Purchasing Director, at each meeting and will be ordered the day following the last meeting of the month with delivery (subject to supplier stock) being the week following.

Payment is due with each order.

TI CALENDAR

Meetings are held every second week starting Jan. 9/85 from 7:00-9:30pm at the Crossroads Motor Hotel, 2120-16 Avenue N.E. unless advised otherwise.

INFORMATION CORNER

The TI-RUNNERS picnic has been considered again this year because of the fun that was had at the last one. There are a few changes that should reduce the cost to the club and still be enjoyable. We would like each family or person be self supportive with regards to food and we will supply the refreshments. It will be held a Bowness Park on a Sunday in early June, so plan now to attend. If you have any good ideas and would like to help organize it please let the executive know. More information will be passed on as it becomes available.

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603 FOREST PLACE S.E., CALGARY, ALBERTA, T2A 1T5 CANADA

√√√√ MULTIPLAN √√√√

ONGOING NOW

See

Ken Dawes

SPECIAL INTEREST GROUPS

☆☆ FORTH ☆☆

STARTS MARCH 6/85

See

Grant Bell

JANUARY

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	●	10	11	12
13	14	15	16	17	18	19
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27	28	29	30	31		

FEBRUARY

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MARCH

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JULY

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AUGUST

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SEPTEMBER

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29	30					

OCTOBER

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27	28	29	●	31		

NOVEMBER

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24	25	26	●	28	29	30

DECEMBER

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8	9	10	●	12	13	14
15	16	17	18	19	20	21
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